

Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

Claims 1-17 (canceled).

18. (currently amended) A method for controlling melt flow in an injection molding apparatus, the injection molding apparatus including a mold block defining a mold cavity and at least partially defining a gate passage to the mold cavity, a manifold and at least one nozzle defining a nozzle melt channel for transferring melt from a melt source to the gate passage, the method comprising:

providing a valve pin at the gate passage that is in an open position such that the valve pin is at least partially removed from the gate passage to permit melt flow through the gate passage, wherein the valve pin is positioned outside the nozzle melt channel in the open position;

moving the valve pin to a closed position such that the valve pin enters the nozzle melt channel to stop the melt flow to the gate passage;

solidifying melt immediately upstream of the valve pin to form a slug to create a seal between the melt source and the gate passage; and

removing the valve pin from the nozzle melt channel to return the valve pin to the open position leaving the slug to after forming the seal between the melt source and the gate passage.

Claims 19-20 (canceled).

21. (previously presented) A method as claimed in claim 18, wherein the mold block includes a first mold plate and a second mold plate, and the first and second mold plates together define the mold cavity, and the method further comprises the steps of:

positioning the first and second mold plates in an ejection position after forming the seal between the melt source and the gate passage, wherein in the ejection position

the first and second mold plates are separated sufficiently for the ejection of the molded part from the mold cavity; and

ejecting the molded part from the mold cavity.

22. (previously presented) A method as claimed in claim 21, further comprising the steps of:

positioning the first and second mold plates in a mold-closed position after ejecting the molded part from the mold cavity, wherein in the mold-closed position the first and second mold plates mate together to define the mold cavity; and

heating the slug to liquefy the slug sufficiently to permit melt to flow into the gate passage and into the mold cavity.

23. (previously presented) A method as claimed in claim 21, further comprising:

positioning the first and second mold plates in a mold-closed position after ejecting the molded part from the mold cavity, wherein in the mold-closed position the first and second mold plates mate together to define the mold cavity;

moving the valve pin to dislodge the slug from the nozzle melt channel; and

heating the slug to liquefy the slug sufficiently to permit melt to flow into the gate passage and into the mold cavity upon removal of the valve pin from the nozzle melt channel.

24. (original) A method as claimed in claim 18, wherein the mold block includes a plurality of mold cavities and a plurality of gate passages thereto, and wherein the plurality of gate passages are in fluid communication with the nozzle melt channel via a common inlet portion, and wherein in the closed position the valve pin cooperates with the common inlet portion to prevent melt flow into the plurality of mold cavities.

Claims 25-29 (canceled).

30. (previously presented) A method for controlling melt flow in an injection molding apparatus, the injection molding apparatus including a mold block defining a mold cavity

and at least partially defining a gate passage to the mold cavity, a manifold and at least one nozzle defining a nozzle melt channel for transferring melt from a melt source to the gate passage, the method comprising:

providing a valve pin at the gate passage in an open position such that the valve pin is at least partially removed from the gate passage to permit melt flow from the nozzle melt channel through the gate passage to the mold cavity;

moving the valve pin to a closed position, wherein the valve pin cooperates with the gate passage to prevent melt flow to the mold cavity, wherein the valve pin is positioned outside the nozzle melt channel in both the open and closed positions;

solidifying melt immediately upstream of the valve pin to form a slug to create a seal between the melt source and the gate passage, wherein the sealing slug is positioned outside the nozzle melt channel; and

returning the valve pin to the open position after forming the seal between the melt source and the gate passage.

31. (previously presented) The method of claim 30, wherein the mold block includes a first mold plate and a second mold plate, and the first and second mold plates together define the mold cavity in a mold-closed position, the method further comprising:

positioning the first and second mold plates in the mold-closed position after ejecting the molded part from the mold cavity; and

heating the slug to liquefy the slug sufficiently to permit melt to flow into the gate passage and into the mold cavity.

32. (previously presented) The method of claim 31, further comprising:

using the valve pin to dislodge the slug from the nozzle melt channel and removing the valve pin from the nozzle melt channel prior to liquefying the slug sufficiently to permit melt to flow into the gate passage and into the mold cavity.